

AMENDMENTS

Amendments to the Specification

Please replace the paragraph beginning at page 5, line 16 with the following:

In another embodiment, the present invention provides a system, and a method, for employing and delivering an oxidant solution comprising free radical species, such as, but not limited to, hydroxyl free radical species ($\text{OH}\bullet$), to a water system or a body of water to be treated using a free radical generator. The free radical generating apparatus, according to one embodiment of the present invention, is schematically illustrated in Figure 4. The free radical generator 25 can have an inlet 26 and an outlet 28. Connecting the inlet and the outlet is typically a channel 30. Channel 30 can have a variety of shapes and configurations to allow the reactant solution to flow therethrough and, in some cases, maximize the incident exposure of the reactant to actinic radiation. For example, channel 30 can be shaped as a cylindrical or an annular chamber. According to one embodiment, within the chamber resides an actinic radiation source 32 contained within a transparent wall 34. The free radical generator can comprise a channel that fluidly connects to the inlet and is disposed to flow the reactant solution, such as substantially pure water, therethrough. The free radical generator can also comprise a source of actinic radiation that is disposed to irradiate the substantially pure water flowing along the channel such that upon irradiation, free radicals are generated therein. In some cases, outlet 28 of the free radical generator is fluidly connected to circulation system 14 at port 24. In some cases the actinic radiation source emits electromagnetic radiation in the ultraviolet range, preferably with a wavelength that is less than 300 nanometers and more preferably with a wavelength that is less than 254 nanometers. Examples of actinic radiation sources are available commercially from, for example, Aquionics Incorporated (Erlanger, Kentucky). The intensity of the actinic radiation source can vary, typically, decreasing, after, a period of use. For example, the rated intensity or dosage of a specific ultraviolet lamp can decrease over time as described by Rodriguez et al. in "Disinfection, Liquid Purification by UV Radiation, and Its Many Applications," *Ultrapure Water*, September 1991, pages 22-30, ~~which is incorporated herein in its entirety~~. Typically, an ultraviolet lamp is rated according at its end of lamp life to insure minimum dosage levels. The present invention is not limited to a particular low or medium pressure lamp; thus, either or both may be used provided the lamp has sufficient intensity to initiate or generate the required free radical species yield.

Amendments to the Drawings

Please replace FIG. 1 with the attached replacement FIG. 1.